Patent claims

1. A process for the preparation of magnetic particles, characterized in that the magnetic particles are produced by decomposition of low-valency compounds of the metals of the magnetic particles in the presence of an organometallic compound of a metal of group 13.

2. The process as claimed in claim 1, the magnetic particles produced having a mean particle size between 3 and 15 nm and a particle size distribution with a standard deviation of not more than 1.6 nm.

3. The process as claimed in claim 1 or 2, the mean particle size being established by the nature and concentration of the organometallic compound used.

4. The process as claimed in any of claims 1 to 3, the organometallic compound used being an organoaluminum compound.

5. The process as claimed in any of claims 1 to 3, the low-valency compounds used being those of iron, of cobalt or of nickel or mixtures thereof.

6. The process as claimed in claim 5, carbonyl compounds of iron, of cobalt or of nickel being used.

7. The process as claimed in claim 5, olefin compounds of iron, of cobalt or of nickel being used.

8. The process as claimed in claim 4, the organoaluminum compound used being an aluminumtrialkyl or an alkylaluminum hydride.

9. The process as claimed in any of claims 1 to 8, the decomposition being effected by thermolysis.

10. The process as claimed in any of claims 1 to 8, the decomposition being effected by photolysis or sonochemically.

11. The process as claimed in any of claims 1 to 10, the magnetic particles produced being protected in an organic solvent by aftertreatment with air.

12. A monometallic or polymetallic magnetic particle having a mean particle size, determined by TEM, of between 2 and 15 nm and a particle size distribution with a standard deviation of not more than 1.6 nm.

13. The magnetic particle as claimed in claim 12, which contains iron, cobalt or nickel.

14. The magnetic particle as claimed in claim 12 or 13, which is protected according to claim 11 by aftertreatment with air.

15. The use of a magnetic particle as claimed in any of claims 12 to 14 for the preparation of magnetofluids having high saturation magnetization with the aid of dispersants.

16. The use of the magnetic particle as claimed in any of claims 12 to 14 after application of a cell-compatible coating as a magnetic cell marker.

17. The use of the magnetic particle as claimed in any of claims 12 to 14 for magnetic cell separation.

18. The use of the magnetic particle as claimed in any of claims 12 to 14 for magneto-optical information storage.